

VINOGRADOV, O.H.

Structural characteristics and growth speed of sandspits of the
Sea of Azov (exemplified by the Berdyansk Spit). Trudy Inst. geog.
79:90-111 '60. (MIRA 13:8)
(Azov, Sea of--Coast changes)

VINOGRADOV, O.N.

Change of the coast configuration of Sukhumi Bay. Biul. MOIP.
Otd.geol. 37 no.3:140-141 My-Je '62. (MIRA 15:10)
(Sukhumi Bay—Coast changes)

ZHIVAGO, A.V.; VINOGRADOV, O.N.; BRASLAVSKAYA, G.M.; TIMOFEYeva, N.A.

New relief map of the bottom of the southern part of the Indian Ocean. Izv. AN SSSR. Ser. geog. no.2:23-28 Mr-Apr '65. (MIRA 18:4)

1. Institut geografii AN SSSR.

VINOGRADOV, O.N.; KRENKE, A.N.

Morphology and evolution of glacial coasts as revealed by a
study on Franz Josef Land. Dokl. AN SSSR 155 no. 4:795-798
Ap '64. (MIRA 17:5)

1. Institut geografii AN SSSR. Predstavleno akademikom A.A.
Grigor'yevym.

VINOGRADOV, O. N.

Dissertation: "Innervation of the Digestive Tract of a Horse." Dr Biol Sci, Inst of Physiology imeni I. P. Pavlov, Acad Sci USSR, Moscow, Oct-Dec 53. (Vestnik Akademii Nauk, Moscow Jun 54)
(Source gives brief summary of work.)

SO: SUM 318, 23 Dec. 1954

1

3067. OPTICAL METHOD FOR INVESTIGATION OF LUBRICANT DEGRADATION.
Vinogradov, OV (Doklady Akad. Nauk S.S.S.R. (Rep. Acad. Sci.
U.S.S.R.), 21 Mar. 1950, vol. 71, 505-508). Above method
is described and illustrated by a series of micrographs.
(L)

ABR-51A METALLURGICAL LITERATURE CLASSIFICATION

23

B

Optical Method for Investigation of Lubricant Deformation. (In Russian.) O. V. Vinogradov, Doklady Akademii Nauk SSSR (Reports of the Academy of Sciences of the USSR), new ser., v. 71, Mar. 21, 1950, p. 503-508.

Above method is described and illustrated by a series of micrographs. 21 ref.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

VINOGRADOV, O.P. (Moscow)

An age-dependent branching process. Teor. veroiat. i ee prim. 9
no.1:146-152 '64. (MIRA 17:4)

PUCHKOV, P.I., inzh.; VINOGRADOV, O.S., inzh.

Heat transfer in annular slots. Energomashinostroenie 9 no.11:22-
24 N '63. (MIRA 17:2)

L 27866-66 EWT(1)/ETC/EPF(n)-2/ENG(m) WW/GS
 ACC NR: AT6001355 SOURCE CODE: UR/0000/65/000/000/0076/0092
 AUTHOR: ^{44,55} Puchkov, P. I.; ^{44,55} Vinogradov, O. S. 12
B41
 ORG: ^{44,55} Central Institute of Boilers and Turbines im. I. I. Polzunova (Tsentral'nyy
 kotloturbinnyy institut)
 TITLE: ^{21,44,55} Heat transfer and hydraulic resistance in annular channels with smooth and
 rough heat-emitting surfaces
 SOURCE: Teplo- i massoperenos. t. 1: Konvektivnyy teploobmen v odnorodnoy srede
 (Heat and mass transfer. v. 1: Convective heat exchange in a homogeneous medium).
 Minsk, Nauka i tekhnika, 1965, 76-92
 TOPIC TAGS: heat transfer, annular channel, surface property
 ABSTRACT: To determine the effect of the roughness of a heat-emitting surface on the
 heat transfer and hydraulic resistance in annular channels with a flow of air, ex-
 periments were conducted using both annular channels with smooth and with rough heat-
 emitting surfaces. Measurements were made of the air flow rate, pressure drop, and
 surface temperature. The air temperature in the test section was varied from 298 to
 318K. The experimental data was analyzed in terms of the Nu and Re numbers. Empiri-
 cal equations were obtained which describe the effect of the surface roughness on the
 heat transfer and the hydraulic resistance in annular channels of various dimensions.
 It is shown that for the same size channels, the heat transfer and the hydraulic
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L 27866-66

ACC NR: AT6001355

resistance depend on both the size and the form of the surface roughness. The intensity of the heat transfer is also greatly dependent on the angle of attack; i.e., air flow perpendicular to the surface increases heat transfer by a factor of $\sqrt{6}$ as compared to parallel flow. Orig. art. has: 11 figures and 12 formulas. [PS]

SUB CODE: 13/ SUBM DATE: 31Aug65/ ORIG REF: 005/ OTH REF: 009/ ATD PRESS 4/66

Card 2/2

L 45138-66 EWT(1) WW

ACC NR: AP6020380 (N)

SOURCE CODE: UR/0114/66/000/006/0031/0032

AUTHOR: Puchkov, P. I. (Candidate of technical sciences); Vinogradov, O. S. (Candidate of technical sciences)

ORG: none

TITLE: Heat transfer in smooth annular heat exchanger channels

SOURCE: Energomashinostroyeniye, no. 6, 1966, 31-32

TOPIC TAGS: convective heat transfer, heat exchanger

ABSTRACT: For annular channels with different ratios of inside and outside diameter, the dimensionless equation must contain an additional multiplier d_2/d_1 to take account of the relative dimensions of the annular channel. In the general form the heat transfer equation for an annular channel is written in the form:

$$Nu_1 = c Re^m Pr^n \left(\frac{d_2}{d_1} \right). \quad (1)$$

The experimental results of many investigators can be correlated by the equations

$$Nu = 0,023 Re^{0,8} Pr^{0,4} \quad (2)$$

or

$$Nu = 0,023 Re^{0,8} Pr^{0,4} \left(\frac{d_2}{d_1} - 1 \right)^{0,2} \quad (3)$$

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UDC: 621.1.016.4:62-45

L 45138-66

ACC NR: AP6020380

in the range of variation of d_2/d_1 from 1.185 to 2.3. To verify the possibility of extrapolating Equations (2) and (3) to the region of high values of d_2/d_1 , experiments were carried out at $d_2/d_1 = 3.08$; 4.92; and 8.24. The inside heat transfer surface was a stainless steel tube with a diameter of 13/2 mm, which was placed in channels 40, 64, and 107 mm in diameter and heated with an alternating current. The experimental results were worked up in two ways; with respect to the equivalent diameter, and with respect to the diameter of the heat transfer tube. Curves are given for the two cases. It was found that working up the data with respect to the equivalent diameter does not yield a single valued relationship, while with respect to d_1 the experimental points fall in a satisfactory manner along a straight line constructed from Equation (3), and agree well with previous literature data. Orig. art. has: 3 formulas and 2 figures.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 002

Card 2/2 *OLR*

VINOGRADOV, P.; NIKITIN

"Plodovye i pishchevye derev'ya lesov Zakavkaz'va," Trudy po Prikladnoi Botanie,
Genetike i Seleksii, Vol 22 (1928-1929).

VINOGRADOV, P.

Michurin seminars. MTO 2 no.7:47 J1 '60.

(MIRA 13:7)

1. Uchenyy sekretar' soveta pervichnoy organizatsii Nauchno-
tekhnicheskogo obshchestva Zernogradskoy selektsionnoy stantsii,
g. Zernograd.

(Zernovoy—Agricultural research)

S/138/60/000/012/003/009
A051/A027

AUTHORS: Vinogradov, P.A., Belyayeva, N.V.

TITLE: Methylethyl Ether in the Products of Divinyl Production Using
S.V. Lebedev's Method

PERIODICAL: Kauchuk i rezina, 1960, No.12, pp. 7-8

TEXT: The commercial ether fraction (boiling point 33°C) produced in the manufacture of divinyl according to S.V. Lebedev's method was investigated. A compound was separated out resembling methylethyl ether in its properties. The investigation was conducted on the fraction separated out in the rectification of commercial ether on an industrial rectification column. The commercial ether fraction had the following characteristics: temperature of the first drop, $^{\circ}\text{C}$ - 20.4, quantity of the fraction with a boiling point below 33°C , % - 98.0, quantity of carbonyl compounds (calculated on acetic aldehyde), % - 2.5, quantity of unsaturated compounds, % - 4.2. The results of the fractional distillation are given in volume%: for the quantity of fractions with a boiling point = $7-8^{\circ}\text{C}$ - 34.4, boiling point = $8-30^{\circ}\text{C}$ - 10.0, residue - 52.0, losses - 3.6. The properties of the

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S/138/60/000/012/003/009
A051/A027

✓

Methylethyl Ether in the Products of Divinyl Production Using S.V. Lebedev's Method.

7-8°C boiling point fraction were investigated. It was found that the specific gravity (found with a dilatometer at 0°C) was $d_4^0 = 0.7232$. The molecular weight found with a Mayer and Kononov instrument over mercury was $M=60.6$. Computed value is $M=60.1$. The boiling point determined according to the Smith and Menzies method was found to be 7.8°C at normal pressure. The qualitative analysis by combustion over copper oxide showed the compound to contain: C-59.84% and H-13.2% (computed values C-60.00%, H-13.3%). Refractive index (according to the Abbe refractometer) was $n_D^{20} = 1.3440$. The molecular refraction from these data was found to $MR = 17.5$ (computed value $MR = 17.7$). The qualitative analysis of the alkoxy groups was carried out according to the Zeisel method. A positive reaction was obtained when heating the investigated compound with hydrogen-iodide acid. The characteristic property of the simple ethers is the ability to self-ignite at a considerably lower temperature as compared to other compounds. The self-ignition temperature of the produced compound was determined by


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S/138/60/000/012/003/009
A051/A027

Methylethyl Ether in the Products of Divinyl Production Using S.V. Lebedev's Method

(Ref.7). It was found to be 150-170°C. Solubility was determined at 0°C. It was found that 16.3 g of the substance dissolves in 100 g of water. It was concluded on the basis of data obtained that the compound formed is methylethyl ether. It is assumed that its formation takes place as a result of incomplete dehydration of the methyl and ethyl alcohols on S.V. Lebedev's catalyst according to the following reaction: $\text{CH}_3\text{OH} + \text{C}_2\text{H}_5\text{OH} \rightarrow \text{CH}_3\text{OC}_2\text{H}_5 + \text{H}_2\text{O}$.

The quantity of fractions boiling at 80°C in the vat residues is 2 - 2.4 %. The presence of the methylethyl ether in the vat residues led to the conclusion that its presence in the divinyl-rectificate is possible in small quantities. The possibility of separating methylethyl ether from the divinyl-rectificate according to the existing method was investigated. In view of the closeness of the distillation temperature and the boiling point of the methylethyl ether present in the divinyl-rectificate the latter can hardly be determined in the form of a residue. Thus, the existing method can not be applied. An investigation of the effect of the presence of



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S/138/60/000/012/003/009
A051/A027

Methylethyl Ether in the Products of Divinyl Production Using S.V. Lebedev's Method

methylethyl ether on the polymerization of the divinyl-rectificate revealed that methylethyl ether has a regulating effect. Contrary to other compounds its effect on the length of the molecular chain is apparent without lowering the rate of polymerization (Table 1). There is 1 table and 8 references: 7 Soviet, 1 English.

Table: Effect of methylethyl ether on the polymerization process of divinyl in laboratory autoclaves. ① divinyl content in the mixture prior to adding the ether, %; ② methylethyl ether content in the mixture, %; ③ polymer yield % to divinyl; ④ plasticity; ⑤ physico-mechanical indices of the vulcanizates (length of vulcanization process 40 min.); ⑥ tear resistance kg/cm²; ⑦ relative elongation, %; ⑧ residual elongation, %.

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S/138/60/000/012/003/009
A051/A027

Methylethyl Ether in the Products of Divinyl Production Using S.V. Lebedev's Method

Содержание дивинила в смеси до введения эфира, %	Содержание метил- этилового эфира в смеси, %	Выход полимера, % к дивинилу	Плас- тиче- ность	Физико-механические показатели вулканиза- тов (продолжитель- ность вулканизации 40 мин.)		
				сопро- тивле- ние раз- рыву кг/см ²	относи- тельное удлине- ние, %	оста- точное удлине- ние, %
1)	2)	3)	4)			
61,0	0	84,5	0,42	199	598	32
64,0	3	83,6	0,53	175	690	40
64,2	0	76,0	0,54	173	683	41
61,2	3	86,0	0,67	153	720	52
66,3	0	82,1	0,49	171	607	36
66,3	3	89,5	0,55	183	663	49

Card 5/5

83847

S/138/60/000/003/002/007
A051/A029

15.9200 also 2209

AUTHORS: Vinogradov, P.A.; Arsen'yeva, N.G.; Gavshinova, K.Ye.

TITLE: Ternary Copolymers of Butadiene, Acrylonitrile and 2-Methyl-5-Vinyl Pyridine

PERIODICAL: Kauchuk i Rezina, 1960, No. 3, pp. 5 - 9

TEXT: The authors have synthesized the ternary copolymers of butadiene with 2-methyl-5-vinyl pyridine and butadiene with acrylonitrile and made a study on the effect of the presence of acrylonitrile rings in the copolymer on the properties of the latter. In Reference 6 it was pointed out that the ternary copolymers in question, containing halide-organic compounds, have a better resistance to the action of aromatic hydrocarbons than the binary copolymers. The experimental procedure followed by the authors is outlined in detail and the results presented in a graph of Figure 1. The obtained results show that the introduction of acrylonitrile rings into the molecular chain of the copolymers of butadiene and methyl-vinyl pyridine has a considerable effect on the properties of the copolymers (see Table 2). The elasticity of the vulcanized rubber is reduced. An obvious drop in the frost resistance is noted. The vitrification

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83847

S/138/60/000/003/002/007
A051/A029

Ternary Copolymers of Butadiene, Acrylonitrile and 2-Methyl-5-Vinyl Pyridine

temperature of CHMBN-15A (SKMVP-15A)¹⁵ rubber is -68°C, whereas for CKHMBN-15-15A (SKNMVP-15-15A) rubber it is -41°C. However, the nitrile rings do not effect the physico-mechanical properties of the vulcanized rubber. The properties of the rubber, subjected to the action of organic liquids at a high temperature are discussed. It is seen that the vulcanized rubber of the investigated copolymers in the presence of halide-organic compounds has a high resistance to swelling in organic liquids and a high thermal resistance. These copolymers surpass the butadiene and 2-methyl-5-vinyl pyridine copolymers in their resistance to swelling in organic liquids and their temperature resistance. It was also established that the investigated copolymers have a high thermal resistance in mineral oils. Table 3 gives the data on the similar relationship of the composition effect of the copolymers and that of the chloranil content to the swelling resistance of the vulcanized rubber at room temperature. The swelling is greater when the rubber does not contain chloranil. There are 3 tables, 1 figure and 7 references: 2 Soviet, 4 English and 1 German. ✓

Card 2/2

36935

S/081/62/000/007/029/033
B168/B101

15.8610

5.3830

AUTHORS:

Vinogradov, P. A., Sal'nikova, K. S., Mironov, G. S.,
Mironova, N. M., Shitova, A. A.

TITLE:

Utilization of the reducing properties of ammonia in the
creation of oxidation-reduction systems for polymerization
in aqueous emulsions

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 7, 1962, 626, abstract
7P117 (Uch. zap. Yaroslavsk. tekhnol. in-ta, v. 6, 1961,
83-90)

TEXT: A new oxidation-reduction (redox) system for initiating the process
of polymerization at low temperatures; is based on the use of hydroperoxide
of isopropylbenzene, ammonia, glucose and sodium pyrophosphate. Study of
the influence of the individual components of the redox system on the rate
of polymerization revealed that an increase in the quantity of each of the
components was regularly accompanied by a rise in the polymerization rate,
which reached its maximum under specific conditions. The influence of the
pH of the medium on the rate of polymerization in the presence of ammonia

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Utilization of the reducing ...

S/081/62/000/007/029/033
B168/B101

was also studied and it was shown that the activating effect of ammonia depended on the pH-value. When the influence of FeSO_4 was being determined it was found that the presence of this substance reduced the rate of polymerization. The proposed redox system is effective even in the absence of salts of fatty acids. A comparison of the copolymerization kinetics of divinyl (I) with styrene (II) in the presence of an ammonia-sugar, iron-sugar or hydroquinone-sulfite redox system showed that these substances were practically equivalent as far as their activating influence was concerned. A formula for the polymerization of mixtures I and II (parts by weight) was worked out on the basis of the new redox system: I 70, II 30, H_2O 200, Nekal BXG 3, NH_3 0.06, glucose 1.0, sodium pyrophosphate 0.06, isopropylbenzene hydroperoxide (containing 86% hydroperoxide) 0.3, di-isopropylxanthogene disulfide 0.1. Reaction time of polymerization at $+5^\circ\text{C}$ 20 hrs. [Abstracter's note: Complete translation.]

Card 2/2

VINOGRADOV, Fanteleymon Aleksandrovich; LEVIN, S.Z., red.

[Protective coatings with additions of molybdenum disulfide and the NDA inhibitor] Zashchitnye smazki s prisadkami dvusernistogo molibdena i ingibitora NDA. Lenin-grad, 1964. 18 p. (MIRA 17:7)

S/138/62/000/012/008/010
AO51/A126

AUTHORS: Shitikov, V. P., Vinogradov, P. A., Tarusina, M. S.

TITLE: Increase in thermal and tear resistance of frictional commercial asbestos articles

PERIODICAL: Kauchuk i rezina, no. 12, 1962, 25 - 26

TEXT: An attempt to increase thermal and tear resistance of frictional commercial asbestos articles was made by introducing chloranil - a halide-organic compound based on SKB (SKB), into the asbestos mixture. Experimental results showed that chloranil increases hardness, specific percussion viscosity and tear resistance of asbestos-frictional vulcanizates, and reduces their friability. The friction coefficient undergoes very little change up to temperatures of 360 - 370°C. Vulcanizates prepared by the dry mixing method, adding chloranil, have 2 to 3 times less linear wear than serial vulcanizates [tests on the M-47 (I-47) tool bench]. Road tests further proved the asbestos-frictional articles, based on the SKB material (serial rubber) and chloranil, to be superior to articles without chloranil. There are 2 figures and 1 table. ✓

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Card 1/2

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S/138/62/000/012/008/010
A051/A126

Increase in thermal and...

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut asbesto-tekh-
nicheskikh izdeliy
Yaroslavskiy zavod SK i Yaroslavskiy zavod asbesto-tekhnicheskikh
izdeliy
(All-Union Scientific and Research Institute of Commercial Asbestos
Articles
Yaroslavl' Plant of SR and Yaroslavl' Plant of Commercial Asbestos
Articles)

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L 41757-65 EPF(c)/EPR/EWP(j)/ERT(m)/T
ACCESSION NR: AP4043969

Pc-4/Pr-4/Ps-4 RFL EM/...
S/0138/64/000/008/0005/0009

AUTHOR: Mironova, N. M., Zakharov, N. D., Vinogradov, P. A., Gavshinova, K. Ye.,
Kucharina, L. G.

TITLE: Nonsulfur vulcanization of unfilled mixes based on butadiene-methyl methacrylate
copolymers

SOURCE: Kauchuk i rezina, no. 8, 1964, 5-9

TOPIC TAGS: butadiene copolymer, methyl methacrylate copolymer, barium oxide octahy-
drate, exopside resin, cumene hydroperoxide, rubber thermal stability, rubber aging,
synthetic rubber, nonsulfur vulcanization, copolymer vulcanization, filler, rubber mechan-
ical property, calcium hydroxide/SKMMA-20A rubber, SKMMA-30A rubber

ABSTRACT: The optimum conditions of vulcanization and the properties of unfilled buta-
diene-methyl methacrylate vulcanizates of varying composition, such as SKMMA-20A,
SKMMA-30A, etc. were investigated. The vulcanizing agent used was barium oxide octa-
hydrate (m.p. 78C), since calcium hydroxide was found to be unsatisfactory. The effect
of varying amounts of barium hydroxide (5-40% by wt.), exopside resin E-41 and cumene
hydroperoxide, as well as the components of the copolymer, on the mechanical properties

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ACCESSION NR: AP4043969

of vulcanizates from SKMMA-30A (elastic modulus at 100 and 300% elongation, tensile strength, relative elongation, etc.) is plotted and discussed in detail. The best results were obtained with 25-30% by weight of barium oxide octahydrate, which results in rapid prevulcanization. Cumene hydroperoxide (1-8% by wt) also increased the rate of vulcanization. Polyhydroxyl compounds such as ethylene glycol, starch or epoxide resin, particularly the latter, reduced the vulcanization time 10-30% and improved the distribution of barium hydroxide, but the number of cross linkages in the polymer was decreased. The effect of vulcanization time and of the type of vulcanizing group on the structure of SKMMA-30A vulcanizates is also plotted, as evaluated from the number of polymer cross-linkages. The best results were obtained with 25-30% methyl methacrylate, with a good resistance to aging combined with satisfactory temperature stability, elongation and other properties. Rubber prepared with epoxide resin was found to have a higher stability to thermal aging than sulfur-containing rubber. Its useful properties remained unchanged even after aging for 72 hours at 150C. Vulcanizates containing 25-30% methyl methacrylate have very high thermal stability. Thus, the tensile strength of SKMMA-20A at 100C is 77 kg/cm², relative elongation 100%, while for the same rubber after a 72-hour aging at 150C the tensile strength is 116 kg/cm², with a relative elongation of 120%. The resistance to thermal aging increases with increasing methyl methacrylate content, but the heat stability decreases. The cause of the increased temperature stability of rubber prepared with

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L 41757-65

ACCESSION NR: AP4043969

3

epoxide resin or other polyhydroxyl compounds is apparently the presence of non-ionic bonds which cannot be destroyed by acid. "B. I. Shapiro took part in the experimental work." Orig. art. has: 6 figures.

ASSOCIATION: Yaroslavskiy tekhnologicheskii institut (Yaroslav Institute of Technology); Yaroslavskiy zavod SK (Yaroslav Synthetic Rubber Factory)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 004

OTHER: 002

Card

CC
3/3

ACCESSION NR: AP4030787

S/0020/64/155/004/0874/0875

AUTHOR: Turov, B. S.; Vinogradov, P. A.; Dolgoplosk, B. A. (Corresponding member); Kostina, S. I.; Kastorskiy, L. P.

TITLE: Effect of electron donor additives on the microstructure of the chain by stereospecific polymerization of butadiene in the presence of "cobaltic" catalytic systems.

SOURCE: AN SSSR. Doklady*, v. 155, no. 4, 1964, 874-875

TOPIC TAGS: butadiene, polymerization, polybutadiene, electron donor additive, chain microstructure, cobaltic catalyst system, stereospecific polymerization, dialkylsulfide, simple ether, tertiary amine, cobalt chloride ethanol complex, diisobutylaluminum chloride, polymerization rate, molecular weight

ABSTRACT: The effect of dialkylsulfides, simple ethers and tertiary amines on the microstructure of the chain formed by polymerizing butadiene in a catalytic system consisting of the $\text{CoCl}_2\text{-C}_2\text{H}_5\text{OH}$ complex and diisobutylaluminum chloride dissolved in a hydrocarbon was investigated. Experiments were run in benzene at 30C using 0.01 wt.% (based on monomer) of the CoCl_2 -catalyst. Microstructure

Card 1/2

TURNOV, B.S.; VINOGRADOV, P.A.; DOLGOPLOSK, B.A.; KHRANINA, Ye.N.; KOSTINA, S.I.

Effect of ethers on the chain structure in the stereospecific polymerization of butadiene. Dokl. AN SSSR 146 no.5:1141-1142 0 '62.
(MIRA 15:10)

1. Yaroslavskiy zavod sinteticheskogo kauchuka. 2. Chlen-korrespondent AN SSSR (for Dolgoplosk).
(Ethers) (Butadiene) (Polymerization)

TUROV, B.S.; VINOGRADOV, P.A.; DOLGOPLOSK, B.A.; KOSTINA, S.I.

Effect of electron-donor additions on the chain structure in the stereospecific polymerization of butadiene. Dokl. AN SSSR 151
no.5:1118-1119 Ag '63. (MIRA 16:9)

1. Yaroslavskiy zavod sinteticheskogo kauchuka. 2. Chlen-korrespondent AN SSSR (for Dolgoplosk).
(Butadiene) (Polymerization) (Stereochemistry)

MIRONOVA, N.M.; VINOGRADOV, P.A.; FARBEROV, M.I.; GAVSHINOVA, K.Ye.;
ZAKHAROV, N.D.; FEDOROVA, K.F.

Synthesis of butadiene and methyl methacrylate copolymers and
the basic properties of sulfurous vulcanizates made on their
base. Kauch. i rez. 22 no.10:1-5 O '63. (MIRA 16:11)

1. Yaroslavskiy tekhnologicheskij institut i Yaroslavskiy zavod
sinteticheskogo kauchuka.

L 12437-63

EPR/EWP(j)/EPF(c)/EWT(m)/BDS ASD Ps-l/Pc-l/Pr-l

RM/WW

ACCESSION NR: AP3001157

S/0190/63/005/006/0850/0853

7/
70

AUTHOR: Vinogradov, P. A.; Basayeva, N. N.

TITLE: Polymerization of unsaturated compounds by lithium-diethylamide

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 5, no. 6, 1963, 850-853

TOPIC TAGS: polymerization, unsaturated compounds, lithium-diethylamide, lithium-piperidide, polymerization of isoprene, polymerization of butadiene

ABSTRACT: The polymerization of isoprene as such or in a benzene solution in the presence of lithium-diethylamide was conducted in 100-ml ampules at 50C for a period of 15-20 hours, the yield constituting 90-95%, while the polymerization of butadiene was performed in lemonade bottles at 30C for a similar length of time. Polymerization in the presence of lithium piperidide resulted in a product of lower molecular weight, while aluminum tri-(diethylamide) proved ineffective. The polybutadiene obtained in the presence of lithium-diethylamide differs from the one obtained by polymerization with metallic lithium. Its structure consists mainly of 1,4-trans and 1,2-units, while in the latter the 1,4-cis and 1,4-trans are predominant. The addition of 0.5% of diethylamine to butadiene in the process of its polymerization by metallic sodium resulted in a polymer with a plasticity of 0.67

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L 12437-63
ACCESSION NR: AP3001157

as against 0.40 without diethylamine, the higher elasticity implying a lower molecular weight. It is assumed that in this case, as well as that of polymerization by lithium, there takes place the formation of some lithium diethylamide, which promotes the establishment of a new kinetic chain. [Abstracter's note: The authors' note in the introduction that "later-on analogous compounds were recommended for the very same purpose" is not correct, since they refer to U. S. Patent No. 2,849,432, issued several years earlier, which became available to them via Chem. Abstr. 53:10844, 1959.] Orig. art. has: 4 tables.

ASSOCIATION: Yaroslavskiy zavod sinteticheskogo kauchuka (Yaroslavl Factory of Synthetic Rubber)

SUBMITTED: 27Nov61

DATE ACQ: 01Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 006

OTHER: 003

Card 2/2

L 8321-66 EWT(m)/EWP(j)/I/ETC(m) WN/RM

ACCESSION NR: AP5026431

SOURCE CODE: UR/0153/65/008/004/0663/0667

AUTHOR: ^{44,55}Mironova, N. M.; ^{44,55}Zakharov, N. D.; ^{44,55}Vinogradov, P. A.; ^{44,55}Gavshinova, K. Ye.

ORG: Departments of Rubber Technology and Chemistry and Technology of OOS and SK, Yaroslavl Technological Institute (Kafedry tekhnologii reziny i khimii i tekhnologii OOS i SK, Yaroslavskiy tekhnologicheskii institut); Yaroslavl SK Plant (Yaroslavskiy zavod SK)

TITLE: Filled sulfur-free rubbers based on ⁷butadiene-⁷methyl methacrylate copolymers⁷

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 8, no. 4, 1965, 663-667

TOPIC TAGS: rubber, barium compound, vulcanization, methyl methacrylate, butadiene

ABSTRACT: ^{15, 44, 55}The article deals with the vulcanization of filled mixtures based on the SKMMA-25A butadiene-methyl methacrylate rubber. The physicochemical properties of vulcanizates prepared with various quantities of barium hydroxide and with various vulcanizing systems were measured. The conditions of preparation of rubber mixtures with the

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UDC: 678.762.2-134.432.028.1

L 8321-66

ACCESSION NR: AP5026431

use of $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ as the vulcanizing agent were studied. It was confirmed that the use of sulfur-free vulcanization of butadiene-methyl methacrylate rubber makes it possible to obtain rubbers having a high thermal stability in contrast to rubbers containing sulfur. However, the mixtures are not sufficiently stable in storage. Orig. art. has: 2 figures and 4 tables.

SUB CODE: 11 / SUBM DATE: 27Apr64 / ORIG REF: 002 / OTH REF: 002

PC

Card 2/2

VINOGRADOV, P.B., assistant

Establishing hygienic norms for carbon disulfide in bodies in
water. Trudy KGM no.10:209-212 '63. (MIRA 18:1)

1. Iz kafedry obshchey gigiyeny (zav. kafedroy - dotsent K.A.
Ivanov) Kalininskogo gosudarstvennogo meditsinskogo instituta.

VINOGRADOV, A. A., Eng. 7 Apr. 1947.

Dissertation: "Switching Elements in the System of Radio-Telemetry." Moscow: Lenin Power Engineering Institute V. M. Molotov, 25 Apr 47.

SO: Vechernyaya Moshva, Apr, 1947 (Project #17036)

VINOGRADOV, P. A., Engineer

"Switching Elements in a System of Radiotelemetry." Sub 25
Apr 47, Moscow Order of Lenin Power Engineering Inst imeni V. M.
Molotov

Dissertations presented for degrees in science and engineering
in Moscow in 1947.

SO: Sum. No. 457, 18 Apr 55

VINOGRADOV, P. H.

Isotopes of lead and their geochemical significance. A.
P. Vinogradov. Seriya Akad. Nauk S.S.S.R. po Mirnoyu
6P Ispol'zovaniyu Atomnoi Energii 1955, Zasedaniya Otdel.
Khim. Nauk 320-60 (English summary, 350-1).—A detailed
 summation of available geochem. and radiological data on
 U isotopes, which an extensive table of distribution of Pb
 isotopes in specimens collected in various parts of the world in-
 cluding numerous locations within the U.S.S.R. It is pointed
 out that Pb does not accumulate in the Fe phase of mete-
 orites. Pb from galena is older, in all cases, in respect to
 isotope compn., than Pb from rock minerals. The sepn. of
 Pb ores is estd. from such data to have been 280 million yrs.
 ago. In some 20% of the various samples the isotope dis-
 tribution was found to be anomalous, the cause for this
 probably being mixing and loss of Rn, U, and related sub-
 stances. Probable causes for alteration of ratios of Pb
 isotopes to those of U, Th, and Pb²¹⁰ are discussed. It is
 pointed out that a study of geochemistry must concentrate
 on the very old nuclei dating back by some 2.5 billion yrs.;
 an est. of earth's age is given as 5×10^9 yrs. Studies of Pb
 compn. are held to be very useful in studying the processes
 of ore formation by correlation of isotopic compn. of ore-
 derived Pb and of the rocks. Numerous references, in-
 cluding some unpublished Soviet work. G. M. K.

VINOGRADOV, P.A.

Electric current in Lake Baikal. Trudy NIIIZM no.11:157-161 '55.
(MLRA 9:8)
(Baikal, Lake--Electrostatics)

VINOGRADOV, P. A.

37-11-12/18

AUTHOR: Vinogradov, P. A.

TITLE: Electric Currents in Lake Baykal (Elektricheskiy tok v ozere Baykal)

PERIODICAL: Trudy Nauchno-issledovatel'skogo instituta zemnogo magnetizma, 1957, Nr 11(21) pp. 157-161 (USSR)

ABSTRACT: The presence of telluric electrical currents in a large fresh-water body such as Lake Baykal and of identical currents and pulsations in Lake Zuy (80 kilometers from Lake Baykal) is discussed. The instruments used are mirror-galvanometers and registering apparatus. Novysh, B. B. is mentioned. There are 2 figures, 1 table, and 2 USSR references.

AVAILABLE: Library of Congress

Card 1/1

AUTHOR VINOGRADOV, P.A. 20-6-19/59

TITLE On the Registration of the Potential Gradient of the Field of Natural Earth Electricity at Different Depths of Lake Baikal.
(O registratsii gradiyenta potentsiala elektrotelluricheskoye polya na ne- kotorykh glubinakh oz.Baykal - Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 6, pp 1255-1258 (U.S.S.R.)

Abstract In order to investigate the conditions of current in different layers of depth, the author of the paper under review organized simultaneous registration of the variation of the potential gradient of the field of natural earth electricity in different depths of Lake Baikal.
The Receivers: The measuring device consisted of a photogalvanograph and of receiving lines which were submerged in different depths of Lake Baikal. During the first period of observations (20 February - 1 April 1955) the Eastern receiving lines were submerged in depths of 5,200, and 1100 m, and the Northern receiving lines in depths of 5 and 400 m. The variations of the potential gradient were recorded with the aid of two of these five lines. During the second period of measurements (15 March - 10 April 1956) the recording was carried out simultaneously by four lines of two cross-shaped devices (submerged in depths of 200 and 700 m).
The Results of the Measurements: Two diagrams as recorded by the measuring device illustrate the character of the short-periodic oscillations of the first kind in depths of 5 and 1100 m. All the 137 short-periodic oscillations which were recorded at the surface of the lake within 53 minutes were also observed in a depth of 1100 m. In this context, the corresponding oscillations at the surface and in a depth of 1100 m are excited simultaneous-

Card 1/2

On the Registration of the Potential Gradient of the Field of Natural Earth Electricity at Different Depths of Lake Baikal. 20-6-19/59

ly (if we disregard the errors of measurement), and the periods of the corresponding oscillations are the same in different depths. A detailed comparison of more than 20,000 short-periodic oscillations demonstrated the identity of all oscillations and impulses. The short-periodic oscillations of the second kind are excited simultaneously at the surface and in a depth of 1100 m. The periods of corresponding oscillations are the same in different depths and they lie in the interval between 35 and 55 seconds, the amplitude increases with increasing depth. A detailed comparison of the fields of natural earth electricity in Lake Baikal and on land supports the assumption of simultaneous excitation, the complete coincidence of the course (but not of the width of the amplitudes), and the equality of the period of corresponding short-periodic oscillations of the first kind in Zuye and in Lake Baikal.

(4 reproductions, 3 charts).

ASSOCIATION	Geophysical Scientific Research Observatory Irkutsk
PRESENTED BY	SHULEYKIN V.V., Member of the Academy
SUBMITTED	8.9.1957
AVAILABLE	Library of Congress
Card 2/2	

AUTHOR: Vinogradov, P. A. SOV/49-59-1-9/23

TITLE: Measurement of the Vertical Component of the Electric Terrestrial Field in the Baykal Lake (Izmereniye vertikal'noy sostavlyayushchey elektrotelluricheskogo polya v Oz. Baykal)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1959, Nr 1, pp 83-86 (USSR)

ABSTRACT: The existence of vertical electric currents in the Earth's crust is still in dispute. This is mainly due to the lack of reliable experimental data. The number of papers dealing directly with the measurement of vertical electric currents is small. The observations reported in them were made under difficult conditions: the measuring electrodes were usually placed in an oil bore-hole (Refs 2,3) or in a dry well (Ref 4). The author measured variation of the potential difference between electrodes placed vertically one above the other at various depths in the Baykal Lake. Measurements in this very deep fresh water lake had the advantage of being carried out in a medium of high purity, uniformity and low mineral

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SOV/49-59-1-9/23

Measurement of the Vertical Component of the Electric Terrestrial Field in the Baykal Lake

content. The author placed twelve electrodes (lead plates 0.4 m^2 in area) at distances of 500 m from one another along lines running in the north-south and east-west directions. The eastern and western electrodes were at depths of 5200 and 1100 m, while the southern and northern electrodes were at depths of 5 and 400 m. The author was particularly interested in measurements of the vertical component of short-period oscillations of the terrestrial electric field. Over 100 two-hour records were obtained. Two such records are shown in Fig.1. Comparison of the records obtained by the author with simultaneous records of terrestrial currents at Zuye (80 km from the Lake Baykal) shows that all short-period oscillations of terrestrial currents occurred at the same time both in the Baykal Lake and at Zuya (Ref 7). The results shown in Fig.1, as well as the rest of the experimental material obtained, leave no doubt about the existence of the vertical component of short-period oscillations of the terrestrial electric field. The ratio of the total horizontal component of the electric field to

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SOV/49-59-1-9/23

Measurement of the Vertical Component of the Electric Terrestrial Field in the Baykal Lake

the vertical component of the same field varies within wide limits (from 10 to 65). Most of the values of this ratio lie between 20 and 40 (Fig.2). Variations of terrestrial currents were usually recorded on a film moving at 20 cm/hr, but occasionally the film was made to move at 22 mm/sec. One of the records obtained with the film moving at 22 mm/sec is shown in Fig.3. This figure shows that the short-period oscillations of the terrestrial electric field reach their maximum at different times when measured at different levels. Curve 1 in Fig.3 represents measurements at 200 m below the lake surface and curve 2 represents measurements at 1100 m. There are 3 figures and 8 references, 4 of which are Soviet, 2 English, 2 German.

ASSOCIATION: Irkutskaya magnitno-ionosfernaya stantsiya
(Irkutsk Magneto-Ionospheric Station)

SUBMITTED: June 10, 1957

Card 3/3

SOV/20-126-3-28/69

AUTHOR: Vinogradov, P. A.

TITLE: On the Anomaly of the Electrotellurium Field in the Region of the Ushkan'i Isles (Baykal Lake) (Ob anomalii elektrotelluricheskogo polya v rayone Ushkan'ikh ostrovov (oz. Baykal))

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 561 - 564 (USSR)

ABSTRACT: In the years 1950 - 1956 a group of the Irkutskoy geofizicheskoy observatorii (Irkutsk Geophysical Observatory) at Baykal carried out measurements of the terrestrial field. These measurements were carried out by recording the variation of the earth potential by means of a measuring instrument consisting of two dipoles, which were erected in the meridional and latitudinal directions. The two measurements shown by figure 1, which were carried out simultaneously at Baykal and in Bol'shoy Ushkan'i, showed a simultaneous variation of the electrotellurium field at both points. Figure 2 shows a measurement of a short-period oscillation of the electrotellurium field. The amplitude of the irregular oscillations amounted to an average of 250 - 300 mv/km and, in the case of strong perturbations, it exceeded 500 mv/km. The maximum gradient of the constant variation of this field is 98 mv/km. The direction of the resulting electrotellurian field is given with a deviation of 10-15° from the meridian,

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On the Anomaly of the Electrotellurium Field in the
Region of the Ushkan'i Isles (Baykal Lake)

SOV/20-126-3-28/69

within the Listvenichnyy rayon as amounting to 45-60°. When investigating the causes of these phenomena it is shown that little is as yet known about this region, that the water of Baykal Lake has a low electric conductivity, and that the earth current in this region has a strength which is near that above the water. In conclusion, the influence of geological formations is investigated, in which connection papers by G. Yu. Vereshchagin and V. V. Lamakin are mentioned. There are 3 figures, 2 tables, and 5 Soviet references.

ASSOCIATION:

Irkutskaya magnitno-ionosfernaya stantsiya Nauchno-issledovatel'skogo instituta zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln (Irkutsk Magneto-ionospheric Station of the Scientific Research Institute for Terrestrial Magnetism, the Ionosphere, and the Propagation of Radio Waves)

PRESENTED:

February 4, 1959, by V. V. Shuleykin, Academician

SUBMITTED:

January 10, 1959

Card 2/2

VINOGRADOV, P.A.

Daily distribution of stable short-period pulsations in the earth's electric field according to observations made at the Uzur Station (Lake Baikal). Trudy Inst. geofiz. AN Gruz. SSR 18:43-52 '60.
(MIRA 13:10)

1. Irkutskaya magnitno-ionosfernaya stantsiya Nauchno-issledovatel'skogo instituta samnogo magnetizma, ionosfery i rasprostraneniya radiovoln.
(Terrestrial electricity)

VINOGRADOV, P.A.

New experimental data on the vertical component of short-
period oscillations of earth currents. Geol. i geofiz.
no.8:100-105 '60. (MIRA 14:2)

1. Irkutskaya magnitno-ionosfernaya stantsiya Vostochno-Sibirskogo
filiala Sibirskogo otdeleniya AN SSSR.
(Earth currents)

VINOGRADOV, P.A.

Some statistical characteristics of short-period Pc and Pt oscillations of the Earth's electromagnetic field, based on data obtained during the International Geophysical Year and the International Geophysical Cooperation in Irkutsk. Report No. 1. Geol. i geofiz. no.12:100-111 '60. (MIRA 14:5)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya AN SSSR, Irkutsk.

(Earth currents) (Magnetism, Terrestrial)

VINOGRADOV, P.A.

Variation of the potential gradient of the electrotelluric field
at different depths in Lake Baikal. Trudy Baik. limnol. sta.
18:380-392 '60. (MIRA 14:1)

(Baikal, Lake--Earth currents)

VINOGRADOV, I. A.

PHASE I BOOK EXPLOITATION

SOV/5215

Akademiya nauk SSSR. Mezhdunarodnyy komitet po provedeniyu
Mezhdunarodnogo geofizicheskogo goda. III razdel programy KMG:
Zemnyy magnetizm i zemnyye toki.

Korotkoperiodicheskiye kolebaniya elektromagnitnogo polya zemli
(Short-Period Oscillations of the Earth's Electromagnetic
Field) Moscow, Izd-vo AN SSSR, 1961. 114 p. 1,800 copies
printed (Series: Izv. Sbornik statey, No. 3)

Resp. Eds.: A. G. Kalashnikov, Doctor of Physics and Mathematics,
and V. A. Troitskaya, Candidate of Physics and Mathematics;
Ed.: Ye. P. Shchukin; Tech. Ed.: Ye. V. Makun.

PURPOSE: This publication is intended for geophysicists.

COVERAGE: This collection of articles, published by the Inter-
departmental IGY Committee of the USSR Academy of Sciences,
treats problems of geomagnetism and telluric currents. In-
dividual articles deal with various (short-period, gigantic,
steady, etc.) oscillations of the terrestrial electromagnetic
field, particularly in the arctic region. No personalities
are mentioned. Brief English abstracts accompany each article.
References follow individual articles.

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28428

S/169/61/000/007/104/104
A006/A101

3,9110

AUTHOR: Vinogradov, P.A.

TITLE: Some statistical regularities in the course of short-period Pc and Pt type variations of the terrestrial electro-magnetic field, obtained from observations during the IGY and the IGS in Irkutsk. Information 2

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 7, 1961, 48, abstract 7G337 ("Geologiya i geofizika," 1961, no. 1, 98-108, English summary) H

TEXT: The distribution of Pt variations over the hours of local time has the shape of a plain wave; they appear most frequently at midnight and less frequently at midday time. A change in the S(Pt) shape from season to season was not revealed. The frequency of Pt recurrence over diurnal hours is not symmetrical in respect to the moment of midnight. Most intensive Pt variations are observed during the night. The diurnal distribution of Pt variations was obtained for days with different magnetic activity. The frequency of Pt appearance increases with higher magnetic activity, however the greatest number of Pt occurrence is not observed during the days of high magnetic activity but during those

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S/169/61/000/007/104/104
A006/A101

Some statistical regularities ...

of medium activity. No clear dependence of Pt occurrence on the yearly seasons was observed. A comparison of average Pt amplitudes during different seasons leads to the conclusion that the Pt amplitude is somewhat higher during the winter than during the summer and the equinoctial period. The diurnal distribution of Pc and Pt is compared at stations which differ in longitude by 155° , and it is shown that the appearance and development of Pc variations takes place according to local time. The global distribution of Pc is characterized by their maximum development at the diurnal side of the Earth and a very weak one (sometimes completely absent) at the nocturnal side. Variations of the Pt class are, on the contrary, characterized by maximum development and recurrence at the nocturnal side of the Earth. 4

[Abstracter's note: Complete translation]

Card 2/2

VINOGRADOV, P.A.

Radius of action of stray currents on the record of variations of
the telluric field. Geol. i geofiz. no.2:121-124 '61.
(MIRA 14:5)

1. Vostochno-Sibirskiy filial Sibirskogo otdeleniya AN SSSR,
Irkutsk.

(Earth currents)

3, 9110 (1121, 1482)

3:152
S/169/62/000/001/033/083
D228/D302

AUTHOR: Vinogradov, P. A.

TITLE: Some data on the morphology of the frequency of the appearance of the Pc and Pt variation in the earth's electromagnetic field

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 1, 1962, 37, abstract 1G256 (Geologiya i geofizika, no. 7, 1961, 77-89)

TEXT: The telluric-content data of 28 stations for the period January 1 - December 31, 1958, were used. The average diurnal variations in the frequency of the appearance of S(Pc) and S(Pt) pulsations were found for months, seasons and years by means of statistical processing. According to local time the diurnal variation has a Pc maximum at 8 - 14 hrs and a Pt maximum at 19 - 02 hrs. Comparison of the moments of the appearance and disappearance of short-period variations at stations situated at different longitudinal distances showed that at eastern stations Pc appear and

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34152

S/169/62/000/001/023/083
D228/D302

Some data on ...

disappear earlier than at western stations. Pt appear abruptly and simultaneously at stations differing by more than 9 - 10 hrs longitudinally. The author supposes that S(Pc) is a superposition of waves, one of which depends on local time and the other on universal time (the unitary wave). Harmonic analysis, undertaken with the aim of distinguishing these waves, showed that the amplitude of the unitary wave is three times smaller than the amplitude of the local wave. Data are cited for the relationship of the harmonic constants to the geomagnetic latitude and the time of the year. For stations of the northern hemisphere the amplitude of the first harmonics is greater in summer than in winter. The yearly and half-yearly components were estimated from the mean monthly values of the frequency of the appearance of the short-period fluctuations. The amplitude of the yearly Pc wave exceeds that of the half-yearly wave by 4 - 6 times. The phases of the yearly Pc wave are opposite in the northern and southern hemispheres and correspond to the annual changes in the sun's declination. For Pt the amplitudes of the yearly and half-yearly waves are approximately the

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31152

S/169/62/000/001/083/083
D228/D302

Some data on ...

same. The yearly Pc and Pt waves are in counterphase, but the half-yearly waves are coincident. /- Abstractor's note: Complete translation. 7

+

Card 3/3

3,9410

29890
S. 189/61/000/009/052/058
D228/D304

AUTHOR: Vinogradov, P. A.

TITLE: New experimental data relating to the vertical component of short-period fluctuations of the earth-current field

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 9, 1961, 27, abstract 9G223 (Geologiya i geofizika, no. 8, 1960, 100-105)

TEXT: The vertical component (Z) of short-period fluctuations of the earth-current field was measured in the spring of 1959 in the vicinity of Cape Izhimey (northeastern shore of Ol'khon Island, Lake Baykal), where the depth of the lake exceeds 1500 m. Lead plates with dimensions of 0.5 m^2 —lowered in one hole to depths of 100 and 600 m—served as the electrodes of one receiving line. The second such line was situated at a distance of 500 m from the first. Recordings were made simultaneously from two vertical lines by the train-type oscillograph 370-4 (EP0-4). The simultaneous recording of the horizontal components of the short-

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New experimental data...

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S/169/61/000/009/052/056
D228/D304

period fluctuations on two latitudinal lines situated at different depths was also guaranteed by simply switching over the intake of the receiving lines. It was found that the short-period fluctuations of the Z-component practically coincide at the same depths but at different points. The amplitude of the Z-component of the short-period fluctuations did not exceed 0.15 mv/km, whereas that for the H-component often exceeded 3 - 4 mv/km. Differences in the ratios of the amplitudes of Z in the short-period fluctuations reach $\pm 10\%$ and bear a fortuitous character, the most probable value for the amplitude ratios being 0.998 ± 0.009 . These divergences may apparently be explained by the influence of impediments in the regions of the receiving electrodes and by the character of the measuring equipment's operation. The mean amplitude of the short-period fluctuations' Z-component equals 0.06 mv/km, and the corresponding density of the vertical currents j is $\sim 4 \times 10^{-14}$ amp \cdot cm² when the specific resistance of the Baykal waters is 150 Ω m. The average value for the amplitude ratios of the short-period fluctuations' H-component at different depths

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New experimental data...

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S/169/61/000/009/052/056

D228/D304

amounts to 1.015 ± 0.005 . Possible errors in the amplitude determinations do not permit the assertion that the absorbing influence of Baykal's waters on the alternating electromagnetic field is revealed here. Comparison with the results of the author's previous work leaves no doubt as to the existence of the Z-component of the short-period fluctuations of earth currents. The ratio of the horizontal to the vertical gradient is $\sim 20 - 40$; the character of the variations of the Z-component of the short-period fluctuations in the two lines with a different length submerged to different depths is the same, but the amplitudes of the variations become greater as the length of the lines increases. It may be supposed that a certain part of the vertical currents is created by the influence of the lake shore. The shore effect can be studied by means of observations at different distances from the shore. [Abstracter's note: Complete translation.]

Card 3/3

29892
S/169/61/000/009/054/056
D228/D304

3.9420 (also 1482)

AUTHOR:

Vinogradov, P. A.

TITLE:

The question of the radius of action of erratic currents on the recordings of variations of the electro-telluric field

PERIODICAL:

Referativnyy zhurnal. Geofizika, no. 9, 1961, 28, abstract 9G225 (Geologiya i geofizika, no. 2, 1961, 121-124)

TEXT: Experimental data are cited on erratic currents caused by the electrification of the Slyudyanka-Kitoy section of the East Siberian railroad. At Zuy, situated 35 km from the railroad, erratic currents amounted to 40 mv/km and more. The currents have an impulse character, the intensity and period of the impulses being different. Measurements of the erratic currents were also made at Listvinichnyy, Shamanka, Patrony, and on Lake Baykal at depths of 200 and 700 m. At the most remote point of observation (Shamanka, 130 km from the railroad) impediments

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The question of...

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D228/D304

from erratic currents were of the order of several mv/km. Such a large radius of action is connected with the large current-loads on the railroad which has frequent rises and bends. The principal directions of the erratic and natural currents are approximately the same. This indicates that the principal directions are on the whole determined by the geoelectric structure of the area at the observation points. [Abstracter's notes: Complete translation.] X

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29887
S/169/61/000/009/048/056
D228/D304

3,9120 (1121,1482)

AUTHOR: Vinogradov, P. A.

TITLE: Short-term fluctuations of the electric field (according to observations at Irkutsk)

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 9, 1961, 27, abstract 9G213 (V so. Korotkoperiod. kolebaniya elektro- magnitn. polya Zemli, no. 3, M., AN SSSR, 1961, 23-34)

TEXT: The results of the study of short-period fluctuations at Irkutsk (Bayanday and Uzur stations) from September 1957 to October 1959 are stated. The diurnal variation of pc has the form of a wave with a maximum at 10 - 11 hrs. and a minimum at 21 - 01 hrs. local time. The average frequency of the appearance of pc is 27.4% on quiet days and 62.8% on days with magnetic activity "2." The amplitudes of pc are at a maximum in the midday hours--local time--and at a minimum in the night. The frequency of the appearance of pc increases from winter (22.4%) to summer (77.5%). The intensity of the fluctuations increases with the

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Short-term fluctuations...

growth in the appearance frequency. Fluctuation trains (pt) are mostly observed at 22 - 02 hrs.; they are rarely encountered at 7 - 15 hrs. No definite relationship for the frequency of the appearance of pt to the time of year is noted, but the amplitudes of pt are somewhat larger in winter. The simultaneous examination of short-term fluctuations at the Mombetsu, Kanoya, Aleksandrovsk-na-Sakhaline, Budkov, Khartland, Valensiya, and Irkutsk stations showed that the development of pc proceeds according to local time. The most intense pc are observed on the earth's daytime side. For pt, on the contrary, the maximum development and the greatest frequency of appearance are characteristic on the nocturnal side. [Abstracter's note: Complete translation.]

Card 2/2

VINOGRADOV, P. A.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Institute of Earth Physics imeni O. YU. Shmidt in 1962:

"Investigation of General Regularities of the Field of Earth Flows."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

S/210/62/000/011/001/001
E032/E414

AUTHOR:

Vinogradov, P.A.

TITLE:

Beat-type oscillations in the electromagnetic field
of the earth (according to observations in Irkutsk)

PERIODICAL: *Geologiya i geofizika*, no.11, 1962, 114-124

TEXT: Regular observations of PP-oscillations were begun at Irkutsk in August 1957. The present paper reports results obtained as a result of four years of observations. The PP-oscillations have the form of beats. The most frequently encountered repetition frequency of these beats was found to be 0.3 to 0.1 cps. The most frequently encountered frequency of the "carrier" was found to correspond to a period of 0.6 to 1.0 sec. Finally, the maximum amplitude of the resultant oscillation was found to lie between 0.05 and 2.5 mV/km, but the most frequently encountered values were in the range 0.15 to 0.60 mV/km. A study was also made of the diurnal variations in the frequency of appearance of the PP-oscillations, the diurnal variation in their intensity and the seasonal distribution. A further study was concerned with changes in the ionosphere during PP-oscillations and their geographical distribution. A survey of the results obtained at Card 1/2

Beat-type oscillations ...

S/210/62/000/011/001/001
E032/E414

twelve different stations shows that for geomagnetic latitudes greater than 40° the mean monthly repetition frequency of PP-oscillations is given by the empirical formula $n = -3.8 + 0.15\varphi$ where φ is the geomagnetic latitude. It is noted that the results now reported are only preliminary. There are 6 figures and 15 tables. ✓

ASSOCIATION: Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln, Irkutsk (Siberian Institute of Terrestrial Magnetism, Ionosphere and the Propagation of Radio Waves, Irkutsk)

SUBMITTED: October 27, 1961

Card 2/2

VINOGRADOV, P.A., kand. tekhn. nauk, dotsent; MOZHAYEV, I.V., kand.
tekhn. nauk, dotsent

Vibration of sewing machines. Nauch. trudy MTILP 25:215-220
'62. (MIRA 16:8)

1. Kafedra teorii mekhanizmov i mashin i teoreticheskoy
mekhaniki Moskovskogo tekhnologicheskogo instituta legkoy
promyshlennosti.

ACCESSION NR: AP4016493

S/0210/63/000/012/0111/0124

AUTHOR: Vinogradov, P. A.

TITLE: Telluric bays and disturbances

SOURCE: Geologiya i geofizika, no. 12, 1963, 111-124

TOPIC TAGS: telluric current, baylike disturbance, positive bay, negative bay, magnetic storm, magnetic disturbance, electromagnetic field, statistical law, telluric activity

ABSTRACT: The few investigations on the activity of the earth's telluric field have been limited to an examination of a restricted number of observations. Works devoted to a detailed investigation of the morphology of telluric activity on the basis of long-period series of uninterrupted observations are not known. The results given in this paper represent a first contribution in this direction. The data obtained confirm a close connection between geomagnetic fields and telluric currents. Cyclic patterns of diurnal, seasonal, and longer-period changes in magnetic activity, previously established for the middle latitudes, are found to apply as well to changes in activity of telluric currents. The author has shown

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ACCESSION NR: AP4016493

both components of the earth's electromagnetic field are conformable to the same statistical laws or patterns. The data from Irkutsk (for the years 1944 to 1955) indicate diurnal, annual, and 11-year cycles in baylike disturbances of telluric currents. There is a clear winter maximum and a summer minimum. The pattern of negative bays is indistinguishable from the pattern of positive bays. Orig. art. has: 8 figures and 19 tables.

ASSOCIATION: Sibirskiy institut zemnogo magnetizma ionosfery* i rasprostraneniya radiovoln, Irkutsk (Siberian Institute of Terrestrial Magnetism, Ionosphere, and Propagation of Radio Waves)

SUBMITTED: 26May62

DATE ACQ: 18Mar64

ENCL: 00

SUB CODE: PH, AS

NO REF SOV: 007

OTHER: 000

Card 2/2

ACCESSION NR: APL033020

S/0019/64/000/004/0510/0524

AUTHOR: Vinogradov, P. A.

TITLE: Solar diurnal variations in the telluric field of the earth

SOURCE: AN SSSR. Izvestiya. Seriya geofizicheskaya, no. 4, 1964, 510-524

TOPIC TAGS: telluric field, telluric current, diurnal variation, eleven year cycle, solar variation

ABSTRACT: This work is based on data from continuously recorded measurements of telluric variations at Zuya for the period from 1944 to 1955 and from discrete observations at stations and on expeditions in various parts of the southern Irkutsk amphitheater. The following features of diurnal variation in the telluric field were noted: 1) the principal (daylight) variation wave to the east has a maximum at 9-11 hours and a minimum at 14-15 hours; 2) the maximum of the principle variation wave to the north occurs at 7-8 hours and the minimum at 12-13 hours; 3) the time of extremes of both waves (to east and to north) is constant throughout the year; 4) the amplitude of the principal wave to the east is twice the amplitude of the principal wave to the north. The author has examined these

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ACCESSION NR: AP4033020

data for daily, seasonal, and eleven-year changes in diurnal variation. Comparison with magnetic data indicates an inductive electromagnetic connection between diurnal geomagnetic and telluric variation. Some authors have proposed that a regular component produced by the atmospheric-electrical field is present in diurnal variation, but results of comparing the space-time changes in this variation and in the electrical field of the atmosphere fail to support this view. Orig. art. has: 8 figures and 7 tables.

ASSOCIATION: Akademiya nauk SSSR Sibirskoye otdeleniye Institut zemnogo magnetizma, ionosfery* i rasprostraneniya radiovoln (Academy of Sciences SSSR Siberian Department Institute of Terrestrial Magnetism, the Ionosphere, and Propagation of Radio Waves)

SUBMITTED: 26Apr63

DATE ACQ: 13May64

ENCL: 00

SUB CODE: ES

NO REF SOV: 007

OTHER: 001

Cord 2/2

VINOGRADOV, P.A.

P_t fluctuations in the earth's electromagnetic field. Geomag. i
aer. 4 no.2:347-351 Mr-ap '64. (MIRA 17:4)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya
radiovoln Sibirskogo otdeleniya AN SSSR.

L 44155-66 EWT(1)/FCC GW/GD

ACC NR: AT6027228

SOURCE CODE: UR/0000/66/000/000/0229/0255

AUTHOR: Vinogradov, P. A.; Vinogradova, V. N.

ORG: none

TITLE: Activity of the electrotelluric field

SOURCE: AN SSSR. Sibirskoye otdeleniye. Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln. Issledovaniya po geomagnetizmu i aeronomii (Studies in geomagnetism and aeronomy). Moscow Izd-vo Nauka, 1966, 229-255

TOPIC TAGS: geomagnetism, electrotelluric field, geomagnetic field, electrotelluric activity

ABSTRACT: The results are presented of a statistical investigation of activity of the electrotelluric field, based on observational data from 1944—1959. Three-point hourly characteristics and hourly amplitudes of the eastern component are used as a gauge of the activity. Diurnal, annual, and cyclical changes of activity are analyzed, and the distribution of disturbances of various intensities during the 24-hr period are considered. The authors present the results of the comparison of activities of electrotelluric and geomagnetic fields, as well as the results of the investigation of activity, taking into account short-period oscillations. Some problems of latitudinal distribution of activity are considered. Orig. art. has: 22 figures and 12 tables. [JJ]

SUB CODE: 08/ SUBM DATE: 25Dec65/ ORIG REF: 019

Cord 1/1 hs

L 41076-66 EWT(1) GD/GW

ACC NR: AT6027229

SOURCE CODE: UR/0000/66/000/000/0256/0267

AUTHOR: Vinogradov, P. A.

ORG: none

TITLE: Short-period oscillations of the earth's electromagnetic field

SOURCE: AN SSSR. Sibirskoye otdeleniye, Sibirskiy institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln. Issledovaniya po geomagnetizmu i aeronomii
(Studies in geomagnetism and aeronomy). Moscow. Izd-vo Nauka, 1966, 256-267

TOPIC TAGS: geomagnetism, electromagnetic radiation, earth electromagnetic field

ABSTRACT: Short-period oscillations of the earth's electromagnetic field with periods from 1—500 sec were divided into two basic types: regular, almost sinusoidal, stable oscillations and irregular oscillations. Certain regularities in the variation of spectra of short-period oscillations as a function of the intensity of storms are established. A description is given of short-period oscillations associated with the bremsstrahlung of energetic electrons incident on the upper atmosphere. The established mean regularities in the excitation of short-period oscillations are compared with regularities in the appearance of luminescent atmospherics and ionospherics. It is established that at middle latitudes (during similar diurnal, annual, and cyclical variations) in only 40—50% of the cases do the short-period

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L 41076-66

ACC NR: AT6027229

oscillations appear simultaneously with F- scattering. Orig. art. has: 2 figures
and 4 tables. [JJ]

SUB CODE: 08 ~~13~~/ SUBM DATE: 25Dec65/ ORIG REF: 011/ OTH REF: 009/ ATD PRESS:
5056

Card . 2/2 11b

VINOGRADOV, PA

1. Preparation of the compound

The compound was prepared by the reaction of the diene with the dienophile in the presence of a catalyst. The reaction was carried out in a sealed tube at 150°C for 24 hours. The product was isolated by distillation and purified by recrystallization from hexane. The yield was 85%.

VINOGRADOV, P.A.

Polymerization of styrol under influence of diazoamino compounds and
the activators. Zhur. ob. khim. 26 no.10:2882-2890 0 '56.
(Polymerization) (Styrene) (MIRA 11:3)
(Diazoamino compounds)

SOV/138-58-10-2/10

AUTHORS: Vinogradov, P. A; Paskhalis, T. K; Kostina, S. I.

TITLE: ~~Properties of 1,3-Butadiene-Nitrile Copolymers~~
(Svoystva divinilnitril'nykh sopolimerov)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 10, pp 5 - 10 (USSR)

ABSTRACT: These copolymers show increased stability to aliphatic hydrocarbons and mineral oils. The stability of the vulcanisates increases with increasing number of acrylonitrile rings in the polymer molecule. The polymerisation is carried out in an aqueous solution. The authors investigated the properties of butadiene acrylonitrile copolymers which depend on the degree of conversion of the monomer (Table 3). Characteristics and properties of the starting materials are given. The 1,3-butadiene and acrylonitrile were emulsified at 30°C, in an autoclave, in a ratio varying from 90:5% to 30:70% of 1,3-butadiene:acrylonitrile. From the graph in Fig.1 it can be seen that the rate of the polymerisation reaction increases with increasing acrylonitrile content in the polymerised mixture. The basic properties of the polymers and vulcanisates correspond to the requirements in GOST 7738 - 55. The properties of the polymers and vulcanisates (at 70% polymerisation) are shown in Table 1

Card 1/2

Properties of 1,3-Butadiene-Nitrile Copolymers SOV/138-58-10-2/10

and Figs. 2 and 3. Changes in the physico-mechanical properties of the vulcanisates in copolymers not containing fillers are tabulated (Table 4). The composition of the copolymers depends on the composition of the starting mixture (Fig.4). These 1,3-butadiene acrylonitrile rubbers are used in the preparation of SKN-18, SKN-20 and SKN-40 rubbers. Changes in the properties of the copolymers depending on the depth of conversion of the monomers are discussed (Fig.5). There are 3 Tables, 5 Figures and 5 References: 4 Soviet and 1 English.

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VINOGRADOV, P.A., ARSEN'YEVA, N.G., GAVSHINOVA, K.Ye.

Reaction of halogen organic compounds with butadiene-nitrile
copolymers. Kauch.i rez. 19 no.7:3-6 J1 '60. (MIRA 13:7)
(Halogen compounds) (Butadiene)

82722

S/138/60/000/007/002/010
A051/A029

15.9210

AUTHORS:

Vinogradov, P.A.; Arsen'yeva, N.G.; Gavashinova, K.Ye.

TITLE:

The Interaction of Haloid-Organic Compounds With Butadiene-Nitrile
Copolymers 15

PERIODICAL:

Kauchuk i Rezina, 1960, No. 7, pp. 3 - 6

TEXT:

The interaction of haloid-organic compounds with butadiene-nitrile copolymers during the vulcanization of rubber mixtures and the properties of the resultant vulcanizates were studied. The experimental procedure is outlined, whereby the conditions adopted were similar to those described in Reference 3. The properties of the polymers and vulcanization were tested according to the ГОСТ-7738-55 (ГОСТ 7738-55) standard on a butadiene-nitrile rubber base. According to experimental data obtained it was found that the vulcanizates of rubber mixtures on a CKH-26 (SKN-26) rubber base in the presence of various haloid derivatives (chloranil, benzotrichloride, benzylchloride, carbon tetrachloride) brings about significant changes in the vulcanizate properties (Table 1). The effect of chloranil on the properties of vulcanizates from various butadiene-nitrile copol-

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S/138/60/000/007/002/010

A051/A029

The Interaction of Haloid-Organic Compounds With Butadiene-Nitrile Copolymers

ymers is shown in Table 2 and Figure 1. It was found that the tensile strength and specific elongation of butadiene-nitrile rubber vulcanizates not containing haloid-organic compounds drop considerably after swelling in autol-18 or AMF-10 (AMG-10) liquid at a temperature of 200°C. Vulcanizates with polymers containing a small number of nitrile rings, such as CKH-10 (SKN-10) and CWH-18 (SKN-18), show a very noticeable drop of the tensile strength. This is not so apparent in SKN-26 and CKH-40 (SKN-40) rubbers. The introduction of 5 weight parts of chloranil has hardly any effect on the properties of the vulcanizates, but increases the tensile strength of the latter after swelling at 200°C in autol-18 and AMG-10 liquid; it also increases their swelling-resistance in these liquids. Chloranil was found to have a strengthening effect on all vulcanizates. The increase in the tensile strength of vulcanizates from SKN-18 rubber containing 5 weight parts of chloranil after swelling in autol-18 at 200°C was from 80 kg/cm² to 150 kg/cm²; for vulcanizates without chloranil and in AMG-10 liquid it was from 40 kg/cm² to 80 kg/cm². Figure 2 shows that with an increase in the chloranil content in SKN-18 vulcanizates after heating in autol-18 the thermal stability and swelling-resistance increase. The elasticity and frost-resistance coefficient do not change significantly. SKN-18 rubber, if sufficiently frost-resistant, or

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The Interaction of Haloid-Organic Compounds With Butadiene-Nitrile Copolymers

rubbers containing a lesser number of acrylonitrile rings (e.g., SKN-10) with haloid-organic compounds (e.g., chloranil) introduced into them, can be used in the production of heat- and frost-resistant rubber articles. Figure 3 shows how benzotrichloride changes the properties of SKN-18 rubber vulcanizates. The main properties of vulcanizates from SKN-18 and SKN-10 rubbers and those of butadiene and 2-methyl-5-vinylpyridine copolymers containing 5 weight parts of chloranil were compared and it was seen that SKN-10 rubber vulcanizates are actually equivalent to vulcanizates from butadiene-methylvinylpyridine copolymers and are only inferior to the latter in their stability to the action of dibutyl sebacate at high temperatures. The possibility of introducing haloid-organic compounds into the butadiene-nitrile latex was established. In conclusion the authors state that the butadiene-nitrile copolymer vulcanizates with haloid-organic compounds can be recommended for the production of various gasoline-, oil- and heat-resistant rubbers, asbestos-commercial products or leather substitutes. There are 3 graphs, 2 tables and 7 references; 3 Soviet and 4 English.

Card 3/3

VINOGRADOV, P.A.; BELYAYEVA, N.V.

Methyl ethyl ether obtained in the production of bdivinyl by
S.V.Lebedev's method. Kauch.i rez. 19 no.12:7-8 D '60.

(MIRA 13:12)

(Ether)

(Butadiene)

VINOGRADOV, P.A.; ARSEN'YEVA, N.G.; GAVSHINOVA, K.Ye.

Triple copolymers of butadiene, acrylonitrile and 2-methyl-5-vinylpyridine. Kauch.i rez. 19 no.3:5-9 Mr '60.

(MIRA 13:6)

(Butadiene) (Acrylonitrile) (Pyridine)

SHITIKOV, V.P.; VINOGRADOV, P.A.; TARUSINA, M.S.; Prinimali uchastiye:
GAYSHINOVA, K.B.; ARSEN'YEVA, N.G.; GUDOK, V.V.; OVCHINNIKOV,
S.G.; MALKOVA, A.P.

Increasing the heat and wear resistance of engineering asbestos
friction materials. Kauch.i rez. 21 no.12:25-26 D '62.

(MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut asbesto-
tekhnicheskikh izdeliy, Yaroslavskiy zavod sinteticheskogo
kauchuka i Yaroslavskiy zavod asbesto-tekhnicheskikh izdeliy.
(Rubber goods) (Asbestos)

S/196/62/004/001/015/020
B110/B101

AUTHORS: Vinogradov, P. A.; Odintsova, P. P. (Deceased). Shitova, A.
A.

TITLE: Effect of the nature of emulsifiers upon the polymerization
rate of styrene and the decomposition of peroxides

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 1, 1962, 98 -
104

TEXT: The effect of the bases used for saponification of fatty acids upon the colloidal solubility of styrene (A) in soap solution, and the effect of commercial emulsifiers upon the polymerization rate of styrene and the decomposition of some peroxide initiators are discussed. Colloidal solubility (CS) in emulsifier solutions was refractometrically determined at 20°C according to A. I. Yurzhenko (Ref. 1: Zh. obshch. khimii, 16, 1171, 1946). The following emulsifiers were used: (1) Potassium oleate of oleic acid and 0.16 g-equivalent/liter K_2CO_3 , (2) potassium oleate of oleic acid with KOH, (3) ammonium oleate (0.02 g-equivalent/liter of free NH_3), (4) Nekal with 99% sodium dibutyl-naphthalene sulfonate and Card 1/3

S/190/62/004/001/015/020
B110/B101

Effect of the nature of ...

0.005 g equivalent/liter of free KOH. (5) rosin soap obtained from hydrogenated colophony and 0.004 g-equivalent/liter of KOH. The pH value was adjusted to 10 - 11 by means of free alkali. Maximum increase of CS with the emulsifier concentration was found for 1 and 3. CS of A in 5% K oleate obtained from KOH is 2.5%, that in K oleate obtained from K_2CO_3 is 12.3%. CS of A does not affect the polymerization rate. Contrary to a statement by A. I. Yurzhenko (Ref. 1), pH does not affect CS of A. The decomposition rate of isopropyl benzene hydroperoxide (B) benzoyl peroxide (C), and potassium persulfate (D) was iodometrically investigated at 70°C in a water-xylene emulsion under exclusion of air. A regular dependence of the stability of peroxides on the nature of emulsifiers could not be found. B had maximum stability followed by D and C. For 1, 2, and 4, no decomposition of B was found. The effect of emulsifiers upon the polymerization rate was studied in an N_2 medium at 60°C in the presence of 0.2 parts by weight (of styrene) of B or equimolecular quantities of other initiators, and 5% aqueous emulsifier solution at pH = 10 - 11. The ratio $A:H_2O$ was 1:2.3 (with respect to weight). The polymerization rate

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Effect of the nature of ...

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B110/B101

was found to be independent of the nature of emulsifier and the CS of the monomer. Since no decomposition of B in potassium oleate and Nekal at normal polymerization rate was found, polymerization is probably caused by few free radicals not determinable by analysis. There are 4 figures, 4 tables, and 6 references: 5 Soviet and 1 non-Soviet. The reference to English-language publications reads as follows: W. Harkins, J. Amer. Chem. Soc., 59, 1428, 1947; J. Polymer Sci., 5, 217, 1950.

SUBMITTED: February 3, 1961

Card 3/3



KUTSENOK, B.Ye.; PARFENOVA, G.A.; VINOGRADOV, P.A.; PASKHALIS, T.K.

Polymerization of ~~butadiene~~ with acrylonitrile in the presence of redox system. Kauch.i rez. 22 no.2:1-4 F '63. (MIRA 16:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka imeni Lebedeva.

(Butadiene)

(Acrylonitrile)

(Polymerization)

S/138/63/000/002/001/007
A051/A126

AUTHORS: Kutsenok, B.Ye., Parfenova, G.A., Vinogradov, P.A., Paskhalis, T.K.

TITLE: Butadiene polymerization with nitrile of acrylic acid in the presence of oxidation-reduction systems

PERIODICAL: Kauchuk i rezina, no. 2, 1963, 1 - 4

TEXT: Composition and conditions of polymerization are given for butadiene with nitrile of acrylic acid in an emulsion at 30°C and in the presence of Nekal, using oxidation-reduction systems. The polymerization of the benzene-petroleum-resistant CKH-18 (SKN-18), SKN-26 and SKN-40 rubbers is initiated by free radicals, formed in the decomposition of potassium persulfate, under the effect of an amine type activator. The following oxidation-reduction systems were tested as new, more active initiators of polymerization: a) isopropylbenzene hydrogen peroxide (hyperis), rongalite, and iron-trilon complex, for polymerization in an alkaline medium; b) hydrogen peroxide and rongalite, for polymerization in an acid medium. The initiating system for the polymerization had the following composition (in weight parts to 100 w.p. of monomer): for the alkaline medium -

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A051/A126

Butadiene polymerization with nitrile of

rongalite 0.3, trilon B 0.06, $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ 0.022, hyperis 0.2; for the acid medium - rongalite 0.2. The pH of the aqueous phase was 8 - 11 and 6 - 6.5, respectively. Experimental data showed that the application of a rongalite system, both in an alkaline, as well as acid medium, reduces the duration of polymerization of the butadiene with nitrile of acrylic acid, by at least 1.5 - 2 times, and ensures good reproducibility of the process. The latexes have a sufficiently high tensile strength. The suggested composition is accepted as optimum in an acid medium. A change in the pH from 8.5 to 11 in an alkaline medium does not affect the rate of polymerization. This also applies to a change in the trilon content from 0.01 to 0.06% of the monomer weight, provided the initiator is measured out during the process gradually. General experiments led to the recommendation of the following ingredients of the oxidation-reduction system in an alkaline medium: rongalite 0.1 - 0.15, trilon B 0.01, $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ 0.005, hyperis 0.15 - 0.2, pH of the aqueous phase 9.0 - 10.5. The process duration (to a polymerization depth of 68 - 70%) for SKN-18 is 8 - 9 h, for SKN-26 7 - 8 h, for SKN-40 4.5 - 5.5 h. In an acid medium, the following composition of the oxidation-reduction system is recommended: rongalite 0.15 - 0.2, hyperis 0.15 - 0.2, pH of the aqueous phase 5.5 - 6.0. The process du-

Card 2/3

Butadiene polymerization with nitrile of

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ration in this case is: SKN-18 6 - 7 h, SKN-26 4.5 - 5.5 h, SKN-40 4 - 4.5 h. It is concluded that in the polymerization of butadiene with nitrile of acrylic acid at 30°C and in the presence of Nekal, the use of oxidation-reduction systems, consisting of isopropylbenzene hydrogen peroxide, rongalite and iron-tri-ion complex (in an alkaline medium) and isopropylbenzene hydrogen peroxide and rongalite (in an acid medium), increases the rate of the process by a factor of 1.5 as compared to rates achieved in the presence of a potassium persulfate-triethanolamine system. Rubbers produced with a rongalite system do not differ from serial-production rubbers. There are 2 figures.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber imeni S.V. Lebedev)

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